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ABSTRACT

Generalizations regarding languages should be presented to students to aid them in mastering the surface forms they encounter. Hoffman's analysis of modals postulates a root meaning and an epistemic meaning for modals and predicts that the root interpretation is generally excluded by the progressive and perfect tenses. This system may form the basis for the teaching of modals. However, other principles need be included if modals are to be presented adequately. First, past tense modals generally have the same meanings as present tense modals in similar environments although their meaning is tinged with a certain remoteness. Second, except for "can" and "will," the past time referent for most modals is formed by including the perfect tense marker in the verb phrase. Third, certain principles exist that govern the interpretation of modals. For example, in questions, "may" functions only with the meaning of permission and not with the meaning of possibility. The analyses are supported with detailed examples. Tables provide a synopsis of the meaning of English modals and a discussion of necessity and hypothesis with "must" and "should." The overall pattern for the description of modals presented in the article is a practical guide for teaching ESL students. (Author/JK)

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Teaching The Modals in an ESL Class

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The Hoffman (1966) division of the English modals into root and epistemic classes can form the basis for teaching the modals in an ESL class. This division would have the modals paired with meanings as follows:

Root	Epistemic	Root	Epistemic
<u>can</u> permission	possibility	<u>may</u> permission	possibility
<u>can</u> ability		<u>must</u> necessity	logical entailment
<u>will</u> volition	future prediction	<u>shall</u> volition	future prediction

However, some principles must be developed from the basis of the Hoffman analysis to cover the modals adequately. The first of these states that generally the past tense modals have the same meanings as the present tense modals in similar environments; their meaning, however, is tinged with a certain remoteness. Should, however, functions both as the past tense form of must and shall. Besides this, it must be remembered that, except for can and will, the past time reference for most of the modals is formed by the introduction of the perfect tense marker into the verb phrase. In addition, there are principles that govern the interpretation of one or two modals such as the principle which states that may does not function in questions with the meaning of possibility; it has only the meaning of permission in these environments. Principles such as these can be used to explain the English modal auxiliaries and hence can be used in teaching.

Students of English as a second language, like students of foreign languages in general, make errors as they go about their task of learning the language. These errors have four frequently recognized sources and one source which is not recognized that frequently. The first four sources are: (1) Developmental errors, identified and discussed by Dulay and Burt (1974), (2) Hypercorrection, a term first popularized by Labov (1972), (3) Negative transfer from the native language, generally referred to as interference and typified as a very small source of errors by Dulay and Burt (1974) and (4) Unique goofs, a term coined by Dulay and Burt to indicate those accidental errors that occur as nonce forms. The fifth source of errors can be found in the real (or imagined) irregularities in the target language.

When it comes to the complement structures in English, some students most often make errors of the following nature:

- (1) a. *I will enjoy to paint Japanese picture ...
b. *...he succeeded to discover the new anesthetic...
c. *I shall go to Yale University for studying
Mechanical Engineering ...
d. *I surprised hearing the people talk about her in
Chicago. (Examples are from Ney (1962:264))

These errors indicate that perceived irregularities in English are the source of syntactic errors centering on the gerundive and infinitival complements in English.

If the model for language learning suggested by Dulay and Burt (1978) with the addition of the two stage hypothesis of Gallagher (1976) is in fact descriptive of the manner in which language is learned, then it would appear that generalizations regarding languages should be presented to students to aid them in mastering the surface forms that they encounter (Ney, 1973). In this endeavor, it would seem that a proper starting place should be found in studies by linguists on the meaning of the auxiliaries themselves.

1. The Analysis of the Modals

As a starting point, the Hofmann (1966) analysis of the modals will be assumed. In this analysis, Hofmann postulated a form, can-1, 'ability' (root), and can-2, 'possibility' (epistemic), and so on for the remainder of the modals. Thus, the dominant features of meanings for the modals in the Hoffman system can then be represented as follows:

Root meaning	Epistemic meaning
may (permission)	may (possibility)
must (necessity)	must (logical entailment)
will (volition)	will (future predicament)

can (ability)

can (possibility)

From this system, Hofmann, and succeeding writers, predicted that "in general, the 'root' interpretation is excluded by the progressive and perfect

1) You may be singing now.

#1) permission (root)

2) possibility (epistemic)

2) He must have gone.

#1) necessity

2) logical entailment (epistemic)" (Jenkins, 1972:2).

This system, developed by Hofmann and expanded by Jenkins (1972), Newmeyer and others, is accurate for the instances that are given, but the systems needs to be expanded. For instance, the following sentences ((3) through (5)) should have the root meaning of must, necessity, since they are not in the environments for the epistemic meaning. Although this is true, they do in fact seem to have the epistemic meaning, logical entailment or hypothesis. (In this study, instead of the term, logical entailment, the term, hypothesis, taken from Ehrman (1966), will be used since it seems to capture the same meaning in more common language.)

- (3) Since the line cannot pass through any other point,
it must bisect the angle equally. (hypothesis)
- (4) The fault must lie in our stars. (hypothesis)
- (5) Since it looks fresh, the pie must taste good.
(hypothesis)

Actually, the environments in sentences (3) through (5) constitute another set of environments for the epistemic meanings of the modals. These environments are touched on by Cook (1978) in a single sentence - 'Epistemic modals occur with state, process and action verbs, but root modals occur with action verbs only' (1978:12). Since the verbs in (3) through (5) are state (or stative) verbs, there should be no expectation that the root interpretation should hold for these modals in these sentences.

One of this set is touched on by Leech (1971:68 and 85) who points out that the epistemic meaning of possibility, normally associated with may, does not occur in questions. This is only one of the examples where the modals in some transformed strings do not behave as they do in simple - active - declarative sentences. Similarly, Leech noticed that the root meaning of necessity cannot be associated with must if there is a negative in the string (1971:87), an extension of the fact that long ago Moulton (1966:11) noticed that have to and must require the same readings in affirmative sentences but diverge sharply in negative sentences.

In other instances, the Hofmann / Newmeyer system needs to be extended. For instance, in this system, it would seem that the root meaning alone should occur with activity verbs in the present tense. Yet, the following examples, (6) and (7), seem to indicate that either the root or the epistemic reading can occur with these verbs in the present.

(6) He must come around that corner before he makes the next turn. (necessity)

(7) He must come around that corner at least twice a day. (hypothesis)

From this, it would appear that the root and epistemic meanings compete in the environment of activity verbs with the present tense.

Besides these, the Hofmann / Newmeyer system needs to be extended in other directions. Thus, for instance, the root meaning of will can be found in the environments for the root meanings of all the modals, the simple present of declarative statements, and the epistemic meaning can be found in the passive as in the sentences at (8) and (9).

(8) I will eat that pie no matter what you say. (volition)

- (9) That pie will be eaten tomorrow. (future prediction)

But if pairs of verbs known as converses are examined, it is possible to find the root meanings in both environments.

- (10) I will follow you wherever you go. (volition)
(11) I will be led wherever the spirit leads. (volition)

Obviously, extensive specification of the verbs involved would be needed before rules can be written to include the facts noticed in sentences (8) through (11).

However, an even greater extension of the Hofmann / Newmeyer system must be effected in other directions. The reason for this is that Hofmann and later writers say that the epistemic meaning of both can and may is possibility, thus implying that their meanings are the same. R. Lakoff (1972) has described the difference in meaning between can and may when they are used to express possibility, in one epistemic environment, the perfect. Her sentences are:

- (10) Football players can be sex maniacs.
(11) Football players may be sex maniacs.

It would appear that sentence (10) has overtone of ability

associated with the modal, can, which are lacking in (11). Besides this, may functions quite adequately with the present perfect, but can will not function at all, producing an ungrammatical sentence as in (12) and (13).

(12) He may have left the country already.

(13) *He can have left the country already.

It would appear from this evidence that the meaning of can and may diverges to a certain extent and as a result may is acceptable in the environment for sentence (12) but can is not. Similarly, it is generally recognized that in requests for permission, may is the proper, polite form whereas can is not as in sentences (14) and (15).

(14) Can I leave the room now?

(15) May I leave the room now?

Some teachers, in the mythology surrounding the use of the language, have been known to respond to questions such as (14) with sarcastic comments such as: 'I don't know if you can. Can you walk?' At this, the child, who initiated the request, responds with 'May I leave the room?' The reason that the teachers can respond as they do is that even when can is used to express permission, there are overtones of the meaning of ability associated with it.

All of these uses of the modals are summarized in Table 1:

TABLE I: Synopsis of the Meaning of the Modals in English

Action verbs - root modals

I can lift 100 lbs. (ability)
 He could lift 100 lbs. last year. (ability)
 You can leave now. (permission)
*could (permission)
 You may leave the room. (permission)
*might (permission)
 He will go home. (volition)
 I would go home tomorrow if I had the money. (volition)
 Jimmy must leave the house. (necessity)
 Jimmy should leave the house. (necessity)

Action verbs - epistemic modals

That line cannot pass through that point. (possibility)
 That line could pass through this point. (possibility)
 John may come home soon. (possibility)
 John might come home (possibility)
 He will go home tomorrow. (future prediction)
*must
 That line must pass through that point. (hypothesis)
 That line should pass through that point. (hypothesis)

Stative verbs - epistemic modals

Halloween can be quite dead. (ability)
 Halloween could be very dead. (ability)
 A trip across the Baja may be quite frightening. (possibility)
 A trip across the Baja might be quite frightening. (possibility)
 She will know where we are staying. (future prediction)
 She would know where we are staying. (future prediction)
 He must know that he is wrong. (hypothesis)
 He should know that he is wrong. (hypothesis)

Passive verbs - epistemic modals

Tom can be misunderstood quite easily. (ability)
 Tom could be misunderstood (ability)
 Tylenol may be taken in small doses. (possibility)
 Tylenol might be taken in small doses. (possibility)
 They will be driven across the Bay bridge. (future prediction)
 They would be driven across the Bay bridge. (future prediction)
 The meat must be cooked by now. (hypothesis)
 The meat should be cooked by now. (hypothesis)

(Copula verb + adjective sequences behave either as stative or action verbs.)

In any case, a quick perusal of Table 1, will show that shall is treated as the preferred form of will in the first person for questions and, probably also for statements; as such it usually has the two meanings associated with will, volition and future prediction. However, in questions which make a request the meaning of shall diverges quite sharply from that of will as in the sentences at (16).

(16) a. Will I get you a drink?

b. Shall I get you a drink?

No attempt will be made to categorize the meaning of shall here except to say that it is used in requests for permission and as such it is close in meaning to can or may which also serve in requests for permission: Can I get you a drink? / May I get you a drink? Although historically, should is the past tense form of shall, it functions as a remote form of shall quite infrequently. It rather has shifted so that now it is recognized as the remote (past tense) form of must by Ehrman (1966), Palmer (1974) and other writers. Some grammarians find other meanings for the modals such as the use of must and should to express obligation in sentences such as those at (17).

(17) a. Paul must pay his dues tomorrow.

b. Paul should pay his dues tomorrow.

Since Huang (1969:164) states that '... languages tend to treat logical necessity indistinguishably from physical consequences or moral obligation,' no attempt has been made here to separate out the meaning 'obligation,' from the meaning of necessity in the modals.

Besides these environments, it is possible to specify other Environments which restrict the semantic interpretation of the modals. Hofmann (1966) and subsequent writers have noted that the root modals do not occur with the progressive or with the perfect tense markers in English.

- (18) *Tom can be lifting 100 lbs. (#ability) (possibility)
 *Tom can have lifted 100 lbs. (#ability) (possibility)
 (18) He could be lifting 100 lbs. (#ability) (possibility)
 by now.
 He could have lifted 100 lbs. (#ability) (possibility)
 (19) *You can be leaving now. (#permission) (possibility)
 *You can have left now. (#permission) (possibility)
 (20) You could be leaving by now. (#permission) (possibility)
 You could have left by now. (#permission) (possibility)
 (21) Jack may be leaving the room. (#permission) (possibility)
 Jack may have left the room. (#permission) (possibility)
 (22) Jennifer might be leaving the (#permission) (possibility)
 room.
 Jennifer might have left the (#permission) (possibility)

room.

(23) He will be going home. (#volition) (future prediction)

He will have gone home. (#volition) (future prediction)

(24) I would be going home (#volition) (future prediction)

tomorrow if I had the money.

I would have gone home (#volition) (future prediction)

yesterday if I had had the money.

(25) Jimmy must be leaving the house. (#necessity) (hypothesis)

Jimmy must have left the house. (#necessity) (hypothesis)

(26) Jimmy should be leaving the (#necessity) (hypothesis)

Jimmy should have left the house. (#necessity) (hypothesis)

Affirmative sentences with can and the perfect or the progressive are grammatically mal-formed, by virtue of the fact that they are semantically mal-formed as in the sentences at (29) and (19). The reason for this has been noted by Leech (1971: 68) who has observed that may in questions is always to be read as 'permission' - the root meaning. As a result, may does not function in the epistemic environments of questions and as a further result, can has taken over this function with questions, but it has lost its functioning in epistemic environments to may in statements.

(27) *May he be coming home soon? (#permission) (possibility)

(28) Can he be coming home soon? (#permission) (possibility)

(29) *May she have come home (#permission) (possibility)

yesterday?

(30) Can she have come home yest (#permission) (possibility)

yesterday?

Just as the sentences with can and the perfect and progressive are ungrammatical in affirmative statements but grammatical in questions so they are also grammatical in negative statements. There are no restrictions, however, on may occurring with negative statements in epistemic environments.

(31) Tom can't be lifting 100 lbs. (#ability) (possibility)

(32) Joan may not be leaving now. (#permission) (possibility)

(33) She can't have left yet. (#permission) (possibility)

(34) Tom may not have lifted 100 lbs. (#ability) (possibility)

Besides this, as R. Lakoff (1972) has demonstrated, can used to express possibility is quite different from may when it is used to express possibility. The sentences that she uses to demonstrate this concept are: Football players can be sex maniacs and Football players may be sex mainiacs.

The meaning of the modals can also be predicted from other types of environments. For instance, the permission readings of can and may include sentences with performative predicates, here defined as those predicates which can be used

with the imperative. Thus, the (a)-sentences at (35) and (36) obviously have the root modals with the ability readings while the (b)-sentences have the root modals with the permission readings since they can be used with the imperative while the (a)-sentences can not.

- (35) a. Joan can drive quite well now. (ability)
b. John can go home right now. (permission)
- (36) a. John can't sew very well yet. (ability)
b. Joan can't drink until she is 21. (permission)

These peculiarities in the distribution and use of can and may are summarized in the following table (Table 2) together with the prohibition readings of must and should which will be discussed later. With the prohibition readings of must and should is one instance in which the negative with can may be read as prohibition: You can't go in that room. (Huang, 1972: 163)

Table 2: Necessity and Hypothesis with must and should

	NECESSITY				HYPOTHESIS	
	(A)	(B)	(C)	(D)	(E)	(F)
	INTENSE		TENTATIVE			
(affirmative, statement)	(1) must	have to	should	ought to	must	should
(interrogative)	(2) must	have to	should	*—	#==	#==
(negative)	(3) #==	have to	#==	*—	must	#==
(contracted - negative with interrogative)	(4) must	have to	should	*—	must	should
(full (stressed) negative with interrogative)	(5) #==	have to	#==	*—	must	should

2. Negation and the modal auxiliaries

Generally, in the description of the modal auxiliaries in English, it is customary to distinguish between internal and external negation. In external negation, the negative negates only the modal. In internal negation, the negative negates the main verb. With the modals, it would appear that the external - internal negation dimension is influenced by word stress. If the negative is accented, the negation is internal; that is, the main verb is negated. If the accent is not on the negative, the negation is external; that is, the modal is negated. This phenomenon is most easily observed in unambiguously epistemic environments with can and may such as the progressive.

(37) John can't be lying. (possibility)

(It is not possible that John is lying.)

(38) John can not be lying. (possibility)

(It is possible that John is not lying.)

(39) John may not be lying. (possibility)

(It is possible that John is not lying.)

(Sentences with the contracted negative and may (mayn't) are not grammatical in American English. Stress is indicated by italicizing the stressed items.)

This phenomenon is even more easily observed when the sentences at (37) have undergone auxiliary fronting in the question

transformation.

(40) Can't John be lying? (possibility)

(Isn't it possible that John is lying?)

(41) Can John not be lying? (possibility)

(Is it possible that John is not lying?)

(42) May John not be lying? (possibility)

(Is it possible that John is not lying?)

(This phenomenon is also easily observable with the perfect, another unambiguously epistemic environment.)

It would appear, however, that the distinction holds throughout the system. Thus, the (a)-sentences at (43) through (46) have external negation while the (b)-sentences have internal negation.

(43) a. Saint Vivacious can not sin. (ability)

(Saint Vivacious has the ability not to sin.)

b. Saint Vivacious can't sin. (ability)

(Saint Vivacious doesn't have the ability to sin.)

(44) a. Can Saint Vivacious not sin? (ability)

(Does Saint Vivacious have the ability not to sin?)

b. Can't Saint Vivacious sin? (ability)

(Doesn't Saint Vivacious have the ability to sin?)

(45) a. Susy can not go to the party tonight. (permission)

(Susy has permission not to go to the party tonight.)

Susy may not go to the party tonight. (permission)

(Susy has permission not to go to the party tonight.)

b. Susy can't go to the party tonight. (permission)

(Susy doesn't have permission to go the party tonight.)

(46) a. Can Susy not go to the party tonight? (permission)

(Does Susy have permission not to go to the party tonight?)

May Susy not go to the party tonight? (permission)

(Does Susy have permission not to go to the party tonight?)

b. Can't Susy go to the party tonight? (permission)

(Doesn't Susy have permission to go the party tonight?)

(Since American English does not have a contracted form for may, the may sentences similar to the can sentences at (45b) and (46b) seem to have the reading of possibility.) Even though internal and external negation can be regularly predicted from the stressed and non-stressed forms of the negative, some sentences with the negatives and the modals create problems because of the semantic shift that the modals undergo with the negative. The most obvious of these is one that was noticed by Moulton (1966: 11). He observed that must with the negative has quite a different meaning from must with the affirmative. This is especially noticeable when sentences with must are compared with sentences with have to.

- (47) a. Sharon has to take her medicine. (necessity)
b. Sharon must take her medicine. (necessity)
c. Sharon doesn't have to take her medicine. (necessity
negated)
d. Sharon mustn't take her medicine. (prohibition)
e. Sharon does not have to take her medicine. (necessity
negated)
f. Sharon must not take her medicine. (prohibition)

Although, it is apparent from this that must with the negative signals prohibition, the distinction between internal and external negation holds so that with the stressed negative, must still signals necessity, not prohibition.

- (48) a. Sharon must not take her medicine. (necessity)
(It is necessary for Sharon not to take her medicine.)
b. Must Sharon not take her medicine? (necessity)
(Is it necessary for Sharon not to take her medicine?)

These facts on the meaning and distribution of must and its difference from other modals are summarized in Table 3.

Even more surprising semantic shifts occur between the contracted and non-contracted negatives with auxiliary inversion in request sentences.

- (49) a. Please do not get into the pool. (existential negative)
b. Please don't get into the pool. (existential negative)
c. Will you please not get into the (existential negative)
pool. (=Please do not get into the pool.)
d. Won't you please get into the (existential affirmative)
pool. (=Please do get into the pool.)
e. Will you please get into the pool. (existential
affirmative)

It is hard to see how even the distinction between internal and external negation can account for the similarity between the sentences at (49d) and (49e). The shifted modal with the contracted negative (won't - external negation) has the effect of asking the addressee to break an implied negative intention of not getting into the pool. This distinction apparently holds for the other present tense modals which can occur with the contracted negative in auxiliary inversion as in the sentences at (40) through (49).

3. Tense and the Modals

Only two of the modals have past tense forms that

function as the real time equivalents of the past tense forms of verbs. These are can with the past tense form, could, and will with the past tense form, would. This can be illustrated in the sentences at (50).

- (50) a. Jean can run a mile in four minutes. (present - ability)
b. Jean could run a mile in four minutes (past - ability)
last year.
c. Jack will walk by the river on a rainy day. (present)
d. Jack would walk by the river on a rainy day last year.
(past)

The modals in (50b) and (50d) are obviously the past tense equivalents of the modals in (50a) and (50c). The sentences at (50c) and (50d) indicate an unusual feature of these two modals; the meanings of the modals will and would in these sentences does not fit in the categories developed by Hoffman (1966) and subsequent writers. These meanings are designated the characteristic use of will and would by writers such as Palmer (1974: 111-112). Actually, these two modals function as a distributive tense marker for the present and the past in the sentences at (50c) and (50d). Ehrman (1966:47) uses the term, habituality, to cover the use of would with the meaning that is evident in sentence (50b). Thus, it would appear that will and would are used in some sentences to express characteristic or

customary action.

Since only two of the modals function as real past tense forms, the question then arises about the function of might and should which are also categorized as past tense forms of the modals and of could and would when they do not function as true past tense modals. Joos (1966) categorizes all of these forms as remote forms of the modals since they add a certain tentativeness to the meanings associated with the modals. In some of their functions, these modals are more tentative or more polite than the present tense forms. Thus, in sentences requesting permission, a student might ask permission as follows:

- (51) a. Student: May I go now? Teacher: Yes, you may.
 b. Student: Can I go now? Teacher: Yes, you can.

(May in its use to express permission is more polite than can.)

In the same situation, it could quite easily be pointed out that the past tense (remote) forms of the same modals add a degree of tentativeness or politeness.

- (52) Student: Might I go now? Teacher: Yes, you may.
 Student: Could I go now? Teacher: Yes, you can.

(Since in a student to teacher situation the student should be as

polite as possible but the teacher does not necessarily have to be so polite, the remote forms, might and could, would be used in the question but not in the answer.) Other examples can be used to illustrate the same phenomenon. For instance, should expresses a less urgent necessity than must in the sentences at (53).

- (53) a. You must go to the doctor.
b. You should go to the doctor.

This is true of all the past tense forms of the modals; they are more tentative, less intense than the present tense forms.

In any case, since most of the modals do not have past tense equivalents, it is usually recognized that the perfect-tense marker serves to signal the simple past tense.

- (54) a. He may have gone to the movies (past - possibility)
yesterday.
b. He might have eaten the canister (past - possibility)
this morning.
c. He must have overslept last night. (past - hypothesis)

With would and should, the meaning of have and the participle of

the verb interacts with the base meaning of the modals to make these contrary to fact conditionals.

- (55) a. Jan would have gone to the doctor if you had spoken to her. (past - volition in a contrary to fact conditional)
b. Jack should have gone to the doctor with his aches. (past - necessity in a contrary to fact conditional)

With shall and will, the perfect signals a time which is anterior to some time in the past.

- (56) a. I shall have finished everything in a bit. (future prediction - anterior to time in future)
b. When one more of those comes along, I will have had enough. (future prediction - anterior to time in future)

Thus for all of the modals except shall and will, the past tense is formed by the introduction of the perfect tense marker into the verb phrase.

4. Conclusion

From an overview of the English modals, it is obvious that current research has not found a simple statement which

encompasses the varied meaning of these auxiliaries nor for the varied conditions under which they are grammatical. It should, however, be clear that there is an overall pattern for the description of the meaning and the use of the modals. This pattern can be conveyed to advanced students by using the outline presented in Table 1 and developed further in Tables 2 and 3.

REFERENCES

- Bolinger, Dwight. 1968. Entailment and the Meaning of Structures. Glossa 2: 119-127.
- Boyd, Julian and J. P. Thorne. 1969. The Semantics of Modal Verbs. The Journal of Linguistics 5: 57-74.
- Burt, M. 1971. From Deep to Surface Structure. New York: Harper and Row.
- Chomsky, Noam. 1959. Review of Verbal Behavior, by B. F. Skinner. Language 35: 26-58.
- Chomsky, Noam. 1965. Aspects of the Theory of Syntax. Cambridge, Mass.: The M. I. T. Press.
- Chomsky, Noam. 1971. Deep Structure, Surface Structure, and Semantic Interpretation. Semantics: An Interdisciplinary Reader in Linguistics and Psychology. Edited by Danny D. Steinberg and Leon A. Jakobovits. Cambridge: At the University Press: 183-218.
- Chomsky, Noam. 1972. Studies on Semantics in a Generative Grammar. The Hague: Mouton.
- Cook, Walter A. 1978. Semantic Structure of English Modals. TESOL Quarterly 12: 5-17.
- Ehrman, Madeline. 1966. The Meanings of the Modals in Present-Day American English. The Hague, Mouton.
- Fries, Charles C. 1925. The Periphrastic Future with shall and will in Modern English. PMLA 40: 963-1024.
- Hofmann, T. R. 1966. Past Tense Replacement and the Modal System. Harvard Computational Laboratory Report to the National Science Foundation on Mathematical Linguistics and Automatic Translation. No. NSF

- 17. Cambridge, Mass.

Huang, Shuan-fan. 1969. On the Syntax and Semantics of English Modals. Ohio State University, Working Papers in Linguistics 4: 159-181.

Huddleston, R. 1974. Further Remarks on the Analysis of Auxiliaries as Main Verbs. Foundations of Language 11: 215-229.

Iwakura, Kumihiro. 1977. The Auxiliary System in English. Linguistic Analysis 3: 101-136.

Jackendoff, Ray. 1972. Semantic Interpretation in Generative Grammar. Cambridge, Mass.: The M. I. T. Press.

Jenkins, Lyle. 1972. Modality in English Syntax. Bloomington, Ind.: Indiana University Linguistics Club.

Joos, Martin. 1966. The English Verb. Madison, Wisc.: The University of Wisconsin Press.

Kalogjera, Damir. 1972-3. The Semantic Uses of the Modal Must and the Related Frequency of Subjects and Verb Phrases. Studia Romanica et Anglica Zagradiensia 33-36: 627-638.

Katz, Jerrold J. and Paul M. Postal. 1964. An Integrated Theory of Linguistic Descriptions. Cambridge, Mass.: The M. I. T. Press.

Karttunen, Lauri. 1971. Implicative Verbs. Language 47: 340-358.

Karttunen, Laur. 1972. Possible and Must. Syntax and Semantics, John P. Kimball (Ed.) New York: Seminar Press.

Kimball, John. 1972. The Modality of Conditionals - A Discussion of Possible and Must. Syntax and Semantics, John P. Kimball (Ed.). New York: Seminar Press.

Kiparsky, Paul. 1968. Tense and Mood in Indo-European Syntax. Foundations of Language 4: 30-57.

- Lakoff, Robin. 1972. The Pragmatics of Modality. Papers from the 8th Regional Meeting of the Chicago Linguistic Society: 229-46.
- Langacker, Ronald W. 1978. The Form and Meaning of the English Auxiliary. Language 54: 853-882.
- Langendoen, D. Terence. 1969. Modal Auxiliaries in Infinitive Clauses in English. Ohio State University, Working Papers in Linguistics 3: 114-121.
- Lee, D. A. 1975. Modal Auxiliaries in Generative Grammar - Some Pedagogic Implications. IRAL 13: 263-274.
- Leech, Geoffrey N. 1969. Towards a Semantic Description of English. London: Longman.
- Leech, Geoffrey. 1971. Meaning and the English Verb. London: Longman.
- Lightfoot, D. 1974. The Diachronic Analysis of English Modals. Historical Linguistics I: Proceedings of the First International Conference on Historical Linguistics, edited by J. M. Anderson and C. Jones. Amsterdam, Holland: North-Holland Publishing Co.
- Marino, Matthew. 1973. A Feature Analysis of the Modal System of English. Lingua 12: 597-601.
- McCawley, James. 1968. The Role of Semantics in a Grammar. Universals in Linguistic Theory, Emmon Bach and Robert T. Harms (Eds.). New York: Holt, Rinehart and Winston.
- McCawley, James. 1971. Tense and Time Reference in English. Studies in Linguistics Semantics. C. J. Fillmore and D. T. Langendoen (Eds.). New York: Holt, Rinehart and Winston.
- McCawley, James. 1975. The Category Status of the English Modals. Foundations of Language 12: 597-601.
- Moulton, William G. 1966. A Linguistic Guide to Language

- Learning. New York: Modern Languages Association.
- Newmeyer, Frederick. 1970. The root modal: Can it be Transitive? Studies Presented to Robert B. Lees by his Students. Calgary, Alberta: Linguistic Research.
- Newmeyer, Frederick. 1975. English Aspectual Verbs. The Hague: Mouton.
- Ney, James W. 1962. A Morphological and Syntactic Analysis of English Compositions Written by Native Speakers of Japanese. Unpublished Ed. D. diss., Ann Arbor, Michigan, The University of Michigan.
- Ney, James W. 1976. The Modals in English: A Floating Semantic Feature Analysis. The Journal of English Linguistics 10: 8-20.
- Ney, James W. 1978. Necessity, Hypothesis and Prohibition in the English Modals must and should. The Journal of English Linguistics 12: 38-49.
- Palmer, F. R. 1965. A Linguistic Study of the English Verb. Coral Gables, Fla.: University of Miami Press.
- Palmer, F. R. 1974. The English Verb. London: Longman.
- Pullum, Geoffrey and Deirdre Wilson. 1977. Autonomous Syntax and the Analysis of Auxiliaries. Language 53: 741-788.
- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech and Jan Svartik. 1972. A Grammar of Contemporary English. London: Longman.
- Ross, John R. 1969. Auxiliaries as Main Verbs. Studies in Philosophical Linguistics. W. Todd (Ed.). Evanston: Great Expectations Press: 77-102.
- Thorne, J. P. 1956-6. English Imperative Sentences. Journal of Linguistics 1-2: 69-78.
- Twaddell, W. Freeman. 1960. The English Verb Auxiliaries. Providence, R. I.: Brown University.

- Woisetschlaeger, Erich F. 1976. A Semantic Theory of the English Auxiliary System. Bloomington, Indiana: Indiana University Linguistics Club.
- Woolhouse, R. S. 1973. Tensed Modalities. Journal of Philosophical Logic 2: 393-415.